

Status Report for the Potential Offstream Storage Facilities Fish, Amphibians, Reptiles, and Mammals September 1998 DRAFT

Background

The California Department of Fish and Game (DFG) was contracted by the California Department of Water Resources (DWR) in 1997 to conduct pre-feasibility field investigations for the presence of Threatened, Endangered, and Special Status fish, amphibian, reptile, and mammal species on four proposed Offstream Storage facilities north of the Sacramento-San Joaquin Delta. Funding for these pre-feasibility studies were provided under Proposition 204 for studies on the Sites, Colusa, Thomes-Newville, and Red Bank proposed reservoirs. Staff from the Central Valley Bay-Delta Branch of DFG has been conducting field surveys for the presence of all special status species (Table 1) that potentially occur within the footprint of each proposed reservoir. Results of these efforts will be reviewed by the DWR Northern District Office, along with studies their staff is conducting such as geology, native plants, engineering, and avian surveys, to identify any red flags that could, potentially, significantly increase the mitigation cost and feasibility of the project.

Introduction

The DFG began investigations on the proposed reservoirs by conducting literature searches, database queries, and agency consultations to develop a list of potentially occurring species. Once the list of fish, amphibian, reptile, and mammal species was compiled, DFG staff began conducting field surveys to verify their presence at each of the four reservoir areas. The proposed Thomes-Newville Reservoir sight had extensive studies conducted in the 1980s so limited efforts are being conducted on that sight during these efforts. Extensive efforts for special status species is in progress and ongoing on the three other sights. All applicable survey protocols and guidelines were implemented to meet requirements of the U.S. Fish and Wildlife Service and DFG. Survey efforts are ongoing and will continue through June of 1999. Final results will be available in the Final Report due in July 1999.

Methods

A variety of survey methodologies are being used for this phase of studies. These methods are explained in detail below by species or species group.

Fish

Chinook salmon - Swimming surveys were conducted with a wetsuit, mask, snorkel, and fins for adult chinook salmon. Surveys of pool areas of the suitable streams and tributaries for adult salmon are carried out seasonally. In addition, out migrant studies for juveniles are also being conducted by placing fyke nets in downstream reaches of the main streams.

Table 1. Potentially occurring Special Status Species on the Offstream Storage Project areas.

Species	Status
Winter-run Chinook Salmon	Endangered
Spring-run Chinook Salmon	Proposed Endangered
Fall-run Chinook Salmon	Proposed Threatened
Late Fall-run Chinook salmon	Proposed Threatened
Steelhead	Threatened
California red-legged frog	Threatened
California tiger salamander	Special Concern
Western spade-foot toad	Special Concern
Foothill yellow-legged frog	Special Concern
Western pond turtle	Special Concern
Giant garter snake	Threatened
California horned lizard	Special Concern
San Joaquin pocket mouse	Special Concern
Marysville California kangaroo rat	Special Concern
Pacific fisher	Special Concern
Marten	Special Concern
American badger	Special Concern
Ringtail	Special Concern
Pallid bat	Special Concern
Spotted bat	Special Concern
Little brown bat	Special Concern
Pale big-eared bat	Special Concern
Greater western mastiff bat	Special Concern
Pacific western big-eared bat	Special Concern
Small-footed myotis	Special Concern
Long-legged myotis	Special Concern
Long-eared myotis	Special Concern
Fringed myotis	Special Concern
Yuma myotis	Special Concern

Steelhead - Electroshocking is the primary method used for assessment of Steelhead populations. The headwaters of the streams are surveyed and the population age structure is documented which shows the recruitment and viability of the population.

Resident fishes - Fish species such as large mouth bass and catfish are not being targeted for surveys with this effort. Methods being used for other species such as seining, dip netting, and electroshocking have provided incidental sightings, however. This data will not be discussed in this report but will be useful for feasibility level studies.

Amphibians

California red-legged frog, Western spade-foot toad, and the Foothill yellow-legged frog - Various surveys are being conducted for this group of species. Searching surveys throughout the summer and spring during the night and day times in ponds, streams, and tributaries are the primary survey method. Seining and dip netting of water sources to capture adults and/or tadpoles for identification are also being conducted. Other methods for detection of these species are egg mass surveys in the spring and vocalization surveys at night. Egg masses can be identified to species based upon time of year and structure of the mass. Calling or vocalization surveys are conducted during the night by playing pre-recorded tapes and listening for responses of the targeted species.

California tiger salamander - This species is extremely secretive so extensive efforts are required. Searching surveys on foot during the day and night through the grasslands looking for migrating adults are the primary survey method. Night driving during fall and early winter rains are also a method used to locate migrating adults. Other methods include seining, dip netting, and egg mass surveys. These survey techniques are used primarily to locate juveniles and breeding populations. Suitable water sources are currently seined and dip netted to document the presence of juveniles and sub-adults that have not gone to burrow yet. Egg mass surveys are conducted in the fall and winter if sufficient rain fall has occurred. Later surveys occur if rain fall has been minimal.

Reptiles

Giant garter snake and Western pond turtle - Searching surveys on foot with binoculars along tributaries, streams, and ponds are being conducted for these two semi-aquatic reptiles. Bare stretches of tributaries and streams and banks of ponds, submerged logs, and rocks are looked at from a distance with binoculars to locate basking individuals. These surveys are conducted on a seasonal basis.

California horned lizard - Searching surveys on foot throughout terrestrial habitats are being conducted for documentation of this species. Additional effort and searches are being conducted around ant mounds for the presence of this species as well.

Mammals

San Joaquin pocket mouse and Marysville kangaroo rat - Live trapping using Sherman ® live

traps is the only method being used for surveys of these species. The traps are baited with a mixture of bird seed and crushed walnuts.

Bats - Live trapping using mist nets is the primary method of survey for these species. Mist nets are set up at sun down over water sources such as creeks or ponds or along potential flyways. In conjunction with live trapping efforts, echolocation surveys using specialized equipment are being conducted to record the ultrasonic frequencies emitted by bats when searching for prey in flight. The equipment DFG is using is an Anabat II, Zero-Crossing Analysis Interface Module, and a laptop computer. Calls are also being recorded on a tape recorder. Bats are extremely efficient at detecting mist nets so this method greatly increases the potential for detection of species that are difficult to capture. These calls will be analyzed this winter and identified to species. Additional surveys being conducted are roost and hibernacula searches for colonies of bats. Roost searches are conducted throughout the year in rock outcroppings, out buildings, caves, crevices, woodlands, and tree cavities. Hibernacula searches will be conducted this winter in the same areas to locate and document populations that are hibernating during cold weather.

Pacific fisher, Marten, Ringtail, and American badger - The primary survey methods being conducted by DFG for these species are spotlighting and talking with land owners. Two or three person crews use 300,000 candle power spot lights while driving at low speeds in a pickup truck on all roads. When eye shine from a species is detected, binoculars and/or a spotting scope enable the surveyors to identify the species. Other survey methods being conducted include live trapping, scent stations and track plates, and photo stations.

Live trapping is conducted with Tomahawk ® box traps that are baited with canned mackerel. All species captured are examined and measured and recorded.

Scent stations and track plates are conducted several different ways. All are based upon the same concept which is to draw an animal in with bait so that evidence will be left behind, a track (footprint). Metal or linoleum sheets sprayed with a mixture of alcohol and carpenters chalk is one method. When an animal is attracted to the bait, it steps on the sheet lifting the chalk leaving a negative imprint of its feet. The other method is to sift fine soil or powder on a flat surface where the animal leaves and impression of its foot. Plaster castings can be made for documentation of the prints.

Photo stations are being conducted with 35mm cameras and 8mm video camera. These cameras are connected to either an infrared motion sensor detectors. Still photos or video are then shot when an animal comes in to the bait and triggers the detector.

Native species - Current efforts are not targeting species that do not constitute special consideration. The survey efforts discussed above, however, are the same methods that would be used to investigate species that do not have special consideration. Incidental captures and sightings are being recorded but those results are not discussed in this report. This information

will be important for future, feasibility level efforts though.

Results

Survey efforts are in progress and ongoing. The level of effort at each project area has varied greatly based upon habitat types present, quality of those habitats, previous studies conducted, and lists of potentially occurring Special Status Species within the inundation zones of the four proposed reservoirs. Work at each of the proposed reservoirs is ongoing and is described below. Results of the survey methodologies described previously are discussed below by project area and species or species groups. A table showing the most up to date results can be found in Appendix A. It should be noted that efforts are still ongoing and that these results could change in the final report.

Sites Reservoir

Extensive efforts for species listed in Table 1 are being conducted throughout the proposed reservoir area.

Chinook salmon - The small creeks and tributaries within this study site were surveyed from the banks for adult salmon resulting in the detection and verification of one adult spring-run salmon in Antelope Valley Creek. The DFG is currently developing a proposal to conduct intensive surveys of the entire Colusa Basin Drain that will help determine why this salmon appeared in this less than optimal drainage.

California red-legged frog, Western spadefoot toad, and the Foothill yellow-legged frog - The U.S. Fish and Wildlife Service has specific survey protocols for the California red-legged frog and the Western spadefoot toad which requires two consecutive years of surveys. Fifty percent, or one year of surveys, have been completed. None of the three species have been detected but surveys are still in progress and ongoing.

California tiger salamander - The U.S. Fish and Wildlife Service has specific survey protocols for this species which requires two consecutive years of surveys. Fifty percent, or one year, of surveys have been completed. This species has not been detected but surveys are still in progress and ongoing.

Giant garter snake and the Western pond turtle - The U.S. Fish and Wildlife Service has a specific survey protocol for the giant garter snake. This species has not been detected but surveys are still in progress and ongoing. Searches for the western pond turtle have, so far, resulted in three sightings within the project area.

California horned lizard - No sightings of this species have been detected so far but surveys are still in progress and ongoing.

San Joaquin pocket mouse and the Marysville kangaroo rat - Live trapping efforts have been

unsuccessful so far but efforts are still in progress and ongoing.

Pacific fisher, Marten, Ringtail, and the American badger - Two sightings of the American badger have been verified within the project area. One sighting of the ringtail has also been verified within the project area. Surveys are still in progress and ongoing. No detections of the Pacific fisher or marten have been made but future efforts may be required in the woodlands to the west of the inundation zone where more suitable habitat occurs.

Bats - Mist netting efforts have resulted in four sightings of the pallid bat and one sighting of the little brown bat. One of the sightings was a population of lactating females which denotes breeding is occurring on the study area. One roost was also documented on the project area. Efforts are still in progress and ongoing.

Vocalization surveys are still in progress and ongoing. Approximately 600 echolocation files have been recorded but processing has not been completed. Processing will take place this winter when field activities slow down.

Colusa Cell of the Colusa Reservoir

Extensive efforts for species listed above are being conducted throughout the proposed reservoir. The Colusa Cell is property that is adjacent to and north of Sites Reservoir. When combined with Sites Reservoir it forms the Colusa Reservoir.

Chinook salmon - The small creeks and tributaries within this study site were surveyed from the banks for adult salmon. No detections have resulted during this first year of studies.

California red-legged frog, Western spadefoot toad, and the Foothill yellow-legged frog - The U.S. Fish and Wildlife Service has specific survey protocols for the California red-legged frog and the Western spadefoot toad which requires two consecutive years of surveys. Fifty percent, or one year of surveys, have been completed. None of the three species has been detected but surveys are still in progress and ongoing.

California tiger salamander - The U.S. Fish and Wildlife Service has specific survey protocols for this species which requires two consecutive years of surveys. Fifty percent, or one year, of surveys have been completed. This species has not been detected but surveys are still in progress and ongoing.

Giant garter snake and the Western pond turtle - The U.S. Fish and Wildlife Service has a specific survey protocol for the giant garter snake. This species has not been detected but surveys are still in progress and ongoing. Searches for the western pond turtle have, so far, resulted in one sighting within the project area.

California horned lizard - No sightings of this species have occurred so far but surveys are still in progress and ongoing.

San Joaquin pocket mouse and the Marysville kangaroo rat - Live trapping efforts have been unsuccessful so far but efforts are still in progress and ongoing.

Bats - Mist netting efforts have resulted in the detection of one sighting of the pallid bats. Efforts are still in progress and ongoing.

Vocalization surveys are still in progress and ongoing. Approximately 600 echolocation files have been recorded but processing has not been completed. Processing will take place this winter when field activities slow down.

Pacific fisher, Marten, Ringtail, and the American badger - No detections have been made for these species during this first year of studies. Surveys are still in progress and ongoing.

Thomes-Newville Reservoir

Extensive surveys took place in the early 1980s so no surveys are currently being conducted for fish, amphibian, and reptiles and only extremely limited surveys for the San Joaquin pocket mouse, Marysville California kangaroo rat, Pacific fisher, marten, ringtail, and the American badger are being conducted. Extensive bat surveys are being conducted, however, because no bat surveys were conducted in the 1980s. Results from the studies conducted in the 1980s are discussed below.

Chinook salmon - Thomes Creek was surveyed under the effort in the 1980s. Adult and juvenile fall-run chinook salmon were documented during those efforts.

Steelhead - Efforts in the 1980s documented the presence of steelhead in Thomes Creek.

California red-legged frog, Western spadefoot toad, and the Foothill yellow-legged frog - Efforts in the 1980s resulted in the documentation of the western spadefoot toad and the foothill yellow-legged frog.

California tiger salamander - This species was not detected during the surveys in the 1980s.

Giant garter snake and the Western pond turtle - Efforts in the 1980s resulted in the documentation of the western pond turtle.

California horned lizard - This species was not detected during the surveys in the 1980s.

San Joaquin pocket mouse and the Marysville kangaroo rat - These species were not detected during the surveys in the 1980s.

Bats - Mist netting efforts were not conducted in the 1980s study. Current efforts have been unsuccessful in capturing any bats but many have been observed. Echolocation recordings have been made with the Anabat Detector but the files have not been processed yet.

Processing will take place this winter when field activities slow down.

Pacific fisher, Marten, Ringtail, and the American badger - Efforts in the 1980s resulted in the documentation of ringtails.

Red Bank Project

Extensive surveys for many of the species listed in Table 1 are being conducted. Suitable habitat for some of those species does not occur at this site so no surveys are being conducted for them which are outlined below. Efforts for the San Joaquin pocket mouse and the Marysville California kangaroo rat are limited because habitat is less than optimal.

Chinook salmon - Current efforts have not detected any races of salmon but efforts are still in progress. Efforts from the late 1970s and early 1980s, however, did document spring-run, fall-run, and late fall-run chinook salmon on the South Fork of Cottonwood Creek. Those studies also documented multiple redds there as well. A study proposal is currently being prepared to address the need for updating that information.

Steelhead - Current efforts have not detected steelhead but efforts are still in progress.. Efforts from the late 1970s and early 1980s, however, did detect and document high numbers of steelhead in the South Fork of Cottonwood Creek. A proposal is currently being prepared to address the need for future studies.

California red-legged frog, Western spadefoot toad, and the Foothill yellow-legged frog - Searching surveys have resulted in the detection of one California red-legged frog and approximately 1,600 Foothill yellow-legged frogs. Surveys are still in progress and ongoing. No surveys are being conducted for the western spadefoot toad because no suitable habitat has been located.

Giant garter snake and the Western pond turtle - Searching surveys have resulted in the detection of 13 western pond turtles. Surveys are still in progress and ongoing. No surveys are being conducted for the giant garter snake because the area is outside of its range and no suitable habitat has been located.

San Joaquin pocket mouse and the Marysville kangaroo rat - The habitat for these species is less than optimal so live trapping efforts are limited. Efforts have not detected either species so far but studies are still in progress and ongoing.

Pacific fisher, Marten, Ringtail, and the American badger - Current efforts have been unsuccessful in detecting these species so far. Effort has been limited, though. Surveys for these species are still in progress and will become more extensive this fall and winter. This reservoir is outside of the American badgers range and no suitable habitat has been located so no surveys are being conducted for this species.

Bats - Current efforts have resulted in the capture of the Yuma myotis. In addition, echolocation recordings have been made with the Anabat Detector but those files have not been processed yet. Processing will take place this winter when field activities slow down.

Discussion

We have completed one year of fish, amphibian, reptile, and mammals studies for Endangered, Threatened, and Species of Special Concern. Field efforts have already detected the presence of 13 of the species in Table 1. Those results are listed in Appendix A. It is highly likely that additional sightings and species will be detected in the ongoing survey efforts.

Our first year of studies in the reservoir footprint areas have not identified or detected any species or situation that, in and of itself, constitutes a project stopper. Current effort results have contributed to our understanding of potential mitigation requirements for Special Status Species that occur within the footprints or inundation zones and have provided preliminary information on potential mitigation sites and other mitigation requirements for the construction of any one of the proposed reservoirs. Substantial additional studies are needed to survey areas adjacent to the reservoirs and to assess potential impacts on other fish and wildlife species. Proposals to address these areas and other species are currently being written by the DFG and the DWR to identify all of the impacts associated with each reservoir. Completion of those studies will help determine the feasibility of each reservoir and identify the required mitigation needs.

Future Needs

The California Environmental Quality Act (CEQA) and the National Environmental Protection Act (NEPA) require that all fish, wildlife, plants, habitats, economic, and cultural resource impacts be addressed. The DFG current efforts are targeting fish, amphibian, reptile, and mammal Special Status Species. Surveys are detecting many additional species but more extensive surveys will be required to adequately determine the impacts to those species. The DFG is currently in the process of developing proposals to conduct the fish and wildlife surveys necessary to meet the requirements of CEQA and NEPA.

APPENDIX A

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Appendix A. Field survey results for each proposed reservoir. A number denotes the how many sightings of the species and an X denotes that species was observed but the number of sightings was not available for this report.

Species	Status	Sites	Colusa ^{1/}	Thomes-Newville	Red Bank
Spring-run Chinook salmon	Proposed Endangered	1			X ^{2/}
Fall-run Chinook salmon	Proposed Threatened			X ^{2/}	X ^{2/}
Late fall-run Chinook salmon	Proposed Threatened				X ^{2/}
Steelhead	Threatened			X ^{2/}	X ^{2/}
California red-legged frog	Threatened				1
Western spade-foot toad	Special Concern			X ^{2/}	
Foothill yellow-legged frog	Special Concern			X ^{2/}	10
Western pond turtle	Special Concern	3	1	X ^{2/}	13
American badger	Special Concern	2			
Ringtail	Special Concern	1			
Pallid bat	Special Concern	4	1		
Little brown bat	Special Concern	1			
Yuma myotis	Special Concern				1

1/ Results in this column are only listed for the Colusa Cell efforts. These results do not include the Sites Reservoir area.

2/ These detections are a result of studies conducted in the 1970s and 1980s. Proposals are currently being developed to update these records.